March 28, 2007

Steven Ryan
c/o Rebecca Duff, ICF Consulting
Ariel Rios Building, SW, MS 6202J
1200 Pennsylvania Ave., NW
Washington D.C. 20460

Dear Mr. Ryan:

On behalf of CEE, I would like to thank EPA for the opportunity to provide comments on the final proposal to revise the ENERGY STAR Roof Products Specification (Specification). The comments and recommendations below represent the consensus position of the CEE Residential and Commercial HVAC Committees (Committees). Organizations listed at the end of this letter have indicated their individual support of the comments.

CEE continues to support third-party performance testing, a two-tiered specification with increases in low-slope thermal reflectance and maintenance of thermal reflectance requirements, alignment with other cool roof programs, and prohibiting the cleaning of samples for maintenance tests as described in our previous comments. The following points focus on EPA's proposal not to require thermal emittance, which undermines the ENERGY STAR value proposition for roof products, particularly in hot, sunny climates where ENERGY STAR Roof Products are most likely to be selected and installed.

**CEE Recommendation: Thermal Emittance is an Integral Aspect of a "Cool Roof" and Should be Required**

The ability to emit infrared energy (i.e. high emittance) is an important component when defining performance requirements of an ENERGY STAR Roof Product. Products with modest thermal reflectance and low emittance may not result in reduced cooling loads, energy savings, or reduced carbon emissions. Table I[1] illustrates that instituting an emittance requirement will lower roof surface temperatures approximately 18 degrees Fahrenheit for low-slope products and 34 degrees Fahrenheit for steep-slope products that meet ENERGY STAR reflectance requirements. We recognize different calculators will yield slightly different estimates, but the delta between products with high emittance and low emittance should not vary significantly.

The Committees recognize some differences of opinion exist regarding the energy savings that result from high emittance in northern climates, however, this debate should not be confused with the definitional parameters of what constitutes a Cool Roof. Without a parameter for emittance, the ENERGY STAR program may be used to

[1] Estimates are calculated using the Lawrence Berkeley National Laboratory calculator, which is attached to these comments.


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"qualify" products that do not have significantly lower roof surface temperatures in hot, sunny climates and would thus undermine the meaning of the ENERGY STAR label.

While EPA further investigates regional performance requirements, the Roof Products Program should be most concerned with ensuring performance in hot sunny climates—where ENERGY STAR Roof Products are most likely to be installed—not with a potentially small (and debatable) energy penalty in northern climates. While thermal emittance will provide modest incremental energy savings in most buildings with an air conditioning load, the most important benefit to instituting an emittance requirement is ensuring only "Cool" products are labeled ENERGY STAR. If ENERGY STAR continues to label products with low emittance, it risks undermining the integrity of the brand in the roofing market particularly in hot, sunny climates.

**Table 1: Impact of emittance on Roof Surface Temperature**

| Solar Reflectance | Thermal Emittance | Roof Surface Temperature (F) | |
|---|---|---|---|
| | **Low Slope** | | |
| **High emittance group** | | | |
| 0.65 | 0.80 | **128** | |
| 0.65 | 0.75 | **129** | |
| 0.65 | 0.70 | **130** | |
| | | | **about 18 degrees F difference** |
| **Low emittance group** | | | (high emittance vs. low emittance) |
| 0.65 | 0.15 | **145** | |
| 0.65 | 0.10 | **147** | |
| 0.65 | 0.05 | **149** | |
| | **Steep Slope** | | |
| **High emittance group** | | | |
| 0.25 | 0.80 | **166** | |
| 0.25 | 0.75 | **168** | |
| 0.25 | 0.70 | **170** | |
| | | | **about 34 degrees F difference** |
| **Low emittance group** | | | (high emittance vs. low emittance) |
| 0.25 | 0.15 | **198** | |
| 0.25 | 0.10 | **202** | |
| 0.25 | 0.05 | **209** | |

Source: LBNL SRI Calculator

Please contact CEE Residential Program Manager John Taylor at (617) 589-3949 ext. 228 with any questions about these comments. Thank you again for the opportunity to comment on the ENERGY STAR Roof Products Specification.

Sincerely,

Marc Hoffman
Executive Director

**Participating Organizations**
American Council for an Energy Efficient Economy
California Energy Commission
Idaho Power
Pacific Gas & Electric
PacifiCorp
Sacramento Municipal Utility District